

We claim:

1. A vaccine composition comprising:
 - (a) an antigen;
 - (b) a saponin adjuvant; and
 - (c) an immunostimulatory oligonucleotide.
2. The vaccine composition as claimed in claim 1, wherein the saponin adjuvant is derived from *Quillaja saponaria*.
3. The vaccine composition as claimed in claim 2, wherein the saponin adjuvant comprises a substantially pure saponin adjuvant.
4. The vaccine composition as claimed in claim 3, wherein the substantially pure saponin adjuvant comprises QS-7, QS-17, QS-18, or QS-21.
5. The vaccine composition as claimed in claim 4, wherein the substantially pure saponin adjuvant comprises QS-21.
6. The vaccine composition as claimed in claim 1, wherein the immunostimulatory oligonucleotide comprises at least one unmethylated CpG dinucleotide.
7. The vaccine composition as claimed in claim 1, wherein the immunostimulatory oligonucleotide is modified.
8. The vaccine composition as claimed in claim 1, wherein the immunostimulatory oligonucleotide is modified with at least one phosphorothioate-modified nucleotide.

9. The vaccine composition as claimed in claim 6, wherein the immunostimulatory oligonucleotide comprises a CpG motif having the formula 5'X₁CGX₂3', wherein at least one nucleotide separates consecutive CpGs, and wherein X₁ is adenine, guanine, or thymine, and X₂ is cytosine, thymine, or adenine.

10. The vaccine composition as claimed in claim 9, wherein the CpG motif comprises TCTCCCAGCGTGC^[SEQ ID NO.:1]CCAT₁ or TCCATGACGTT^[SEQ ID NO.:2]CCTGACGTT_λ

11. The vaccine composition as claimed in claim 1, wherein the composition increases the immune response to the antigen when administered to a mammal.

12. The vaccine composition as claimed in claim 1, wherein the composition increases the immune response to the antigen when administered to a human.

13. The vaccine composition as claimed in claim 1, wherein the composition increases the immune response to the antigen when administered to an animal.

14. The vaccine composition as claimed in claim 1, wherein the composition further stimulates immunity.

15. The vaccine composition as claimed in claim 1, wherein the composition further enhances antibody production to the antigen.

16. The vaccine composition as claimed in claim 1, wherein the composition further enhances antibody production to the antigen in a positive synergistic manner.

17. The vaccine composition as claimed in claim 1, wherein the composition further enhances cell-mediated immunity.

18. The vaccine composition as claimed in claim 1, wherein the antigen comprises a protein, a peptide, a polysaccharide, a lipid, a glycolipid, a phospholipid, or a nucleic acid encoding the protein or peptide.

19. An immune adjuvant composition comprising

- (a) a saponin adjuvant; and
- (b) an immunostimulatory oligonucleotide.

20. The immune adjuvant composition as claimed in claim 19, wherein the saponin adjuvant is derived from *Quillaja saponaria*.

21. The immune adjuvant composition as claimed in claim 20, wherein the saponin adjuvant comprises a substantially pure saponin adjuvant.

22. The immune adjuvant composition as claimed in claim 21, wherein the substantially pure saponin adjuvant comprises QS-7, QS-17, QS-18, or QS-21.

23. The immune adjuvant composition as claimed in claim 22, wherein the substantially pure saponin adjuvant comprises QS-21.

24. The immune adjuvant composition as claimed in claim 19, wherein the immunostimulatory oligonucleotide comprises at least one unmethylated CpG dinucleotide.

25. The immune adjuvant composition as claimed in claim 19, wherein the immunostimulatory oligonucleotide is modified.

26. The immune adjuvant composition as claimed in claim 25, wherein the immunostimulatory oligonucleotide is modified with at least one phosphorothioate-modified nucleotide.

SUB
C3

27. The immune adjuvant composition as claimed in claim 24, wherein the immunostimulatory oligonucleotide comprises a CpG motif having the formula 5' X_1 CG X_2 3', wherein at least one nucleotide separates consecutive CpGs, and wherein X_1 is adenine, guanine, or thymine, and X_2 is cytosine, thymine, or adenine.

B

28. The immune adjuvant composition as claimed in claim 27, wherein the CpG motif comprises TCTCCCAGCGTGCGGCAT₁ or TCCATGACGTTCTGACGTT₁ [SEQ ID NO.:1] [SEQ ID NO.:2]

29. The immune adjuvant composition as claimed in claim 19, wherein the composition increases the immune response to an antigen when administered to a mammal.

30. The immune adjuvant composition as claimed in claim 19, wherein the composition increases the immune response to an antigen when administered to a human.

31. The immune adjuvant composition as claimed in claim 19, wherein the composition increases the immune response to an antigen when administered to a animal.

32. The immune adjuvant composition as claimed in claim 27, wherein the antigen comprises a protein, a peptide, a polysaccharide, a lipid, a glycolipid, a phospholipid, or a nucleic acid encoding the protein or peptide.

33. A method for stimulating immunity to an antigen in an individual comprising administering an effective amount of a vaccine composition as claimed in claim 1.

SUB
C4

SUB
C5

34. The method as claimed in claim 33, wherein the saponin adjuvant is derived from *Quillaja saponaria*.

35. The method as claimed in claim 34, wherein the saponin adjuvant comprises a substantially pure saponin adjuvant.

36. The method as claimed in claim 35, wherein the substantially pure saponin adjuvant comprises QS-7, QS-17, QS-18, or QS-21.

37. The method as claimed in claim 36, wherein the substantially pure saponin adjuvant comprises QS-21.

38. The method as claimed in claim 33, wherein the immunostimulatory oligonucleotide comprises at least one unmethylated CpG dinucleotide.

39. The method as claimed in claim 33, wherein the immunostimulatory oligonucleotide is modified.

40. The method as claimed in claim 39, wherein the immunostimulatory oligonucleotide is modified with at least one phosphorothioate-modified nucleotide.

41. The method as claimed in claim 38, wherein the immunostimulatory oligonucleotide comprises a CpG motif having the formula 5' X_1 CG X_2 3', wherein at least one nucleotide separates consecutive CpGs, and wherein X_1 is adenine, guanine, or thymine, and X_2 is cytosine, thymine, or adenine.

42. The method as claimed in claim 41, wherein the CpG motif comprises
[SEQ ID NO: 1] [SEQ ID NO: 2]
TCTCCCAGCGTGCGCCAT or TCCATGACGTTCTGACGTT

43. The method as claimed in claim 33, wherein the composition increases the immune response to an antigen when administered to a mammal.

44. The method as claimed in claim 33, wherein the composition increases the immune response to an antigen when administered to a human.

45. The method as claimed in claim 33, wherein the composition increases the immune response to an antigen when administered to an animal.

46. The method as claimed in claim 33, wherein the method further enhances antibody production to the antigen.

47. The method as claimed in claim 46, wherein the method further enhances antibody production in a positive synergistic manner.

48. The method as claimed in claim 33, wherein the method further enhances ~~cell-mediated immunity.~~

49. A method for increasing the immune response to an antigen in an individual or a test system to which the antigen is administered comprising administering an effective amount of an immune adjuvant composition as claimed in claim 19.

50. The method as claimed in claim 49, wherein the saponin adjuvant is derived from *Quillaja saponaria*.

51. The method as claimed in claim 50, wherein the saponin adjuvant comprises a substantially pure saponin adjuvant.

52. The method as claimed in claim 51, wherein the substantially pure saponin adjuvant comprises QS-7, OS-17, QS-18, or QS-21.

53. The method as claimed in claim 52, wherein the substantially pure saponin adjuvant comprises QS-21.

Sub 95

54. The method as claimed in claim 49, wherein the immunostimulatory oligonucleotide comprises at least one unmethylated CpG dinucleotide.

55. The method as claimed in claim 49, wherein the immunostimulatory oligonucleotide is modified.

56. The method as claimed in claim 55, wherein the immunostimulatory oligonucleotide is modified with at least one phosphorothioate-modified nucleotide.

57. The method as claimed in claim 54, wherein the immunostimulatory oligonucleotide comprises a CpG motif having the formula 5' X_1 CGX $_2$ 3', wherein at least one nucleotide separates consecutive CpGs, and wherein X_1 is adenine, guanine, or thymine, and X_2 is cytosine, thymine, or adenine.

58. The method as claimed in claim 57, wherein the CpG motif comprises
[SEQ ID NO.: 1] TCTCCCAGCGTGCGCCAT₁ or [SEQ ID NO.: 2] TCCATGACGTTCTGACGTT₁

Sub 106

59. The method as claimed in claim 49, wherein the composition increases the immune response to an antigen when administered to a mammal.

60. The method as claimed in claim 49, wherein the composition increases the immune response to an antigen when administered to a human.

61. The method as claimed in claim 49, wherein the composition increases the immune response to an antigen when administered to an animal.

62. The method as claimed in claim 59, wherein the antigen comprises a protein, a peptide, a polysaccharide, a lipid, a glycolipid, a phospholipid, or a nucleic acid encoding the protein or peptide.

ADD
C7

add
D14

add
e6